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PATENT
Attorney Docket No.: 414634

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Roissue Application of Proctor

Reissue Application No. 09/773,303

Filed: January 31, 2001

For: U.S. Patent No. 5,894,079

Group Art Unit: 1638

Examiner: McElwain, Elizabeth F.

Confirmation No. 6243

In re Proctor Reexamination Proceeding

Control No. 90/005,892

Filed: December 20, 2000

For: U.S. Patent No. 5,894,079

Title: FIELD BEAN CULTIVAR NAMED ENOLA

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

May 14, 2007

REPLY BRIEF

Sir/Madam:

The present matter is a consolidated reissue/*ex parte* reexamination proceeding being conducted in accordance with 37 C.F.R. §1.565(d).

In accord with 37 C.F.R. § 41.41(a)(1), and responsive to the Examiner's Answer of March 13, 2007, Appellants hereby file their Reply Brief in support of their Appeal in the above-identified matter. This Reply Brief is timely filed within two months of the mailing of the Examiner's Answer. An additional copy of this Reply Brief is being submitted on this date, under separate cover, to the Commissioner for Patents, for inclusion in the reexamination proceeding.

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MAY 14 2007

006/032

Attorney Docket No. 414634

(1) Status of the claims.

Claims 1-53 and 56-71 are pending in the consolidated proceedings. Claims 16-50, 53 and 65-71 are withdrawn from consideration. Claims 1-15, 51, 52 and 56-64 stand rejected.

Specifically, claims 1-15, 51, 52 and 56-64 stand rejected under 35 U.S.C. §112, first paragraph for failing to comply with the written description and enablement requirements; claims 1-7 and 59-64 stand rejected under 35 U.S.C. §112, second paragraph; and claims 1-15, 51, 52 and 56-64 stand rejected under 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. §103(a), as obvious over any of CIAT G13 094, G02 400, G22 215, G22 227, G22 230, G11 891 or Kaplan (Guitarreri Cave, p. 146, 1980), Hernandez-Xolocotzi et al. (Seminar Series 2E, CIAT, p. 253-258, 1973), Voysest (Varieties of Beans in Latin America, CIAT, p. 47-50, 1983), and Azufrado Peruano 87 (Secretaria de Agricultura Y Recursos Hidraulicos; Solicitud de Inscripcion en el Registro Nacional de Variedades de Plantas, Registration No. FRI-150288-042, September 25, 1987).

Appellant appeals claims 1-15, 51, 52 and 56-64 on all grounds of rejection.

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Attorney Docket No. 414634

(2) Grounds of rejection to be reviewed on appeal.

- A. Whether claims 59-64 are unpatentable under 35 U.S.C. §112, first paragraph, for lack of written description, new matter.
- B. Whether claims 1-15, 51, 52 and 56-64 are unpatentable under 35 U.S.C. §112, first paragraph, for lack of written description.
- C. Whether claims 1-15, 51, 52 and 56-64 are unpatentable under 35 U.S.C. §112, first paragraph, for lack of enablement.
- D. Whether claims 1-7 and 59-64 are unpatentable under 35 U.S.C. §112, second paragraph.
- E. Whether claims 59-64 are unpatentable under 35 U.S.C. §112, second paragraph for claim language relating to 'the yellow color plotted as a distribution in the population of the seed of sufficient number for purposes of ATCC deposit having a peak occurrence'.
- F. Whether claims 1-15, 51, 52 and 56-64 are unpatentable under 35 U.S.C. §102(b) as anticipated by, or in the alternative under 35 U.S.C. §103(a) as obvious over, any of CIAT G13 094, G02 400, G22 215, G22 227, G22 230, G11 891 or Kaplan (Guitarreri Cave, p. 146, 1980), Hernandez-Xolocotzi et al. (Seminar Series 2E, CIAT, p. 253-258, 1973), Voysest (Varieties of Beans in Latin America, CIAT, p. 47-50, 1983), and Azufrado Peruano 87 (Secretaria de Agricultura Y Recursos Hidraulicos; Solicitud de Inscripcion en el Registro Nacional de Variedades de Plantas, Registration No. FRI-150288-042, September 25, 1987).

Attorney Docket No. 414634

(3) Argument.

The Examiner has maintained rejections of claims 1-15, 51, 52 and 56-64 under 35 U.S.C. §112, first paragraph for failing to comply with the written description and enablement requirements; claims 1-7 and 59-64 under 35 U.S.C. §112, second paragraph; and claims 1-15, 51, 52 and 56-64 under 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. §103(a), as obvious over any of CIAT G13 094, G02 400, G22 215, G22 227, G22 230, G11 891 or Kaplan (Guitarreri Cave, p. 146, 1980), Hernandez-Xolocotzi et al. (Seminar Series 2E, CIAT, p. 253-258, 1973), Voysest (Varieties of Beans in Latin America, CIAT, p. 47-50, 1983), and Azufrado Peruano 87 (Secretaria de Agricultura Y Recursos Hidraulicos; Solicitud de Inscripcion en el Registro Nacional de Variedades de Plantas, Registration No. FRI-150288-042, September 25, 1987).

In addition to arguments presented in the Appeal Brief of October 23, 2006, we request consideration of the following remarks.

Patentability under 35 U.S.C. §112, first paragraph, written description, claims 59-64.

The Examiner rejects language in claims 59 and 62, and claims dependent thereon, related to "yellow color plotted as a distribution in a population of the seed of sufficient number for purposes of ATCC deposit [having] a peak occurrence ranging" from one color to another color in the *Munsell Book of Color* as new matter.

Appellant previously argued that it has been determined that a deposit may be claimed according to the description of properties that are inherent to the deposit, even if those properties are not fully disclosed *in haec verba* in the original specification, *In re Nathan*, 328 F.2d 1005, 1008-1009, 140 USPQ 601, 604 (CCPA 1964), and that one skilled in the art would recognize a distribution in seed coat color as the result of normal phenotypic variance. In response to Appellant's arguments, the Examiner states "Appellant is arguing limitations that are not in the claims. Claims 59-64 are not limited to *Phaseolus vulgaris* seed that is identified as Enola nor are said claims limited to seeds of the deposit." (Examiner's Answer, p. 25)

Seeds on deposit with the ATCC constitute a representative sample of Enola seeds. The inherent characteristics of the deposited sample are consistent with the

Attorney Docket No. 414634

inherent characteristics of seed of the Enola cultivar as a whole. Given the representative nature of the deposit, it is unclear why the Examiner would insist that claims 59-64 include an explicit identification of Enola in the deposit. Claims 59-64 identify seeds of the *Phaseolus vulgaris* cultivar Enola by one or more distinguishing characteristics, e.g., a unique yellow color ranging from about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light. The fact that such distinguishing characteristics can be represented by a peak occurrence in plotted data is due to the well-known phenomenon of phenotypic variance. See, http://www.mun.ca/biology/scarr/4241F_Quantitative_Genetics.html (July 18, 2005 printout). Phenotypic variance is observable in the traits of any representative population of non-cloned living organisms. As discussed above, seed of the ATCC deposit is one example of such a representative population. It is therefore appropriate that claims 59-64 describe a peak occurrence in the inherent properties of Enola seeds, as supported by the representative sample on deposit with the ATCC.

In general, the Examiner's comments ignore phenotypic variance, which is a well-known phenomenon that will create a peak occurrence in plotted data of a physical characteristic of a non-cloned living organism. For example, the Examiner states, "Nowhere in the specification does it teach or suggest that the seeds of the invention encompass an entire distribution of yellow seed coat colors..." (Examiner's Answer, p. 29) However, "A patent specification need not teach, and preferably omits, what is well known in the art." *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986). The phenomenon of phenotypic variance is well-known to those skilled in the art.

Not only does the Examiner fail to recognize the ATCC deposit as a representative sample, but, at page 26 of the Examiner's Answer, it is stated that "Appellant deposited the seeds after the application filing date, and therefore any amendments that introduce additional description of the deposited seeds are considered new matter, even if the characteristics are inherent in the seeds of the deposit." To support this position, the Examiner cites a portion of MPEP 2163 which states, "Deposits made after the application filing date cannot be relied upon to

Attorney Docket No. 414634

support additions to or correction of information in the application as filed."

However, the cited section of MPEP 2163 relates to the correction of sequencing errors in applications disclosing nucleic acid and/or amino acid sequences, and further states:

"If an application as filed includes sequence information and references a deposit of the sequenced material made in accordance with the requirements of 37 CFR 1.801 *et seq.*, amendment may be permissible. Deposits made after the application filing date cannot be relied upon to support additions to or correction of information in the application as filed...Deposits made after the filing date can only be relied upon to provide support for the correction of sequence information if applicant submits a statement in compliance with 37 CFR 1.804 stating that the biological material which is deposited is a biological material specifically defined in the application as filed."

Although we are not dealing with sequence listings in the instant case, MPEP 2163 clearly allows for amendment when a statement in compliance with 37 CFR 1.804 is submitted. The Examiner recognizes that such a statement was submitted in application no. 08/749,449 (Examiner's Answer, pp. 27-28). Given the unrelated subject-matter of this MPEP citation, and the fact that Appellant has, in any case, complied with the submission requirements recited therein, we fail to understand how MPEP 2163 can support the Examiner's position that "Appellant cannot rely on the post filing date deposit of seed to support the introduction of any new description, even if it is inherent." (Examiner's Answer, p. 29) Further, the Examiner's position appears to directly contradict existing case law, such as *In re Nathan* (*vide supra*), and MPEP 2163.07(a) which states, "By disclosing in a patent application a device that inherently performs a function or has a property...a patent application necessarily discloses that function [or property]..., even though it says nothing explicit concerning it. **The application may later be amended to recite the function [or property]...without introducing prohibited new matter.** *In re Reynolds*, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); *In re Smythe*, 480 F.2d 1376, 178 USPQ 279 (CCPA 1973)." (emphasis added)

Appellant maintains that claims 59-64 fulfill the requirements of 35 U.S.C. §112, first paragraph, written description.

Attorney Docket No. 414634

Patentability under 35 U.S.C. §112, first paragraph, written description, claims 1-15, 51, 52 and 56-64.

Claims 1-15, 51, 52 and 56-64 stand rejected under 35 U.S.C. §112, first paragraph, for lack of written description. Appellant previously argued that possession of the invention has been demonstrated based on, at least: (1) the deposited material, which may alone be sufficient to meet the written description requirement (*Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 63 USPQ2d 1614 (Fed. Cir. 2002)), (2) the exacting description of uniform and stable traits recited in the description and claims, and (3) the description of an actual reduction to practice of the claimed invention, demonstrated by the ATCC deposit and documented in the drawings/photos of the patent application (*Vas-Cath*, 935 F.2d at 1565, 19 USPQ2d at 1118 ("drawings alone may provide a 'written description' of an invention as required by Sec. 112")).

The Examiner maintains that the rejection is proper given that Appellant has stated that seeds deposited with the ATCC represent a variety of genetic entities displaying phenotypic variation. In particular, the Examiner appears to find an inconsistency in Appellants statement that "It is well known that variation within a cultivar can produce a range of sizes, shapes and colors", yet "[n]o variant traits have been observed or are expected in Enola" (Examiner's Answer, pp. 30-31).

Webster's Online Dictionary defines "variant" as 'variable, not true to type: ABERRANT -- used of a biological group or character, deviating from the usual or natural type: ATYPICAL, not typical: IRREGULAR, UNUSUAL'. Phenotypic variance within a cultivar does not create unusual characteristics that are "not true to type". Thus, there is no inconsistency in stating that variation (i.e., phenotypic variation) occurs within a cultivar without the occurrence of variant traits. Appellant's previous statement that "...the seeds are not phenotypically varied, but they display normal phenotypic variance," should more correctly have stated that the seeds are not phenotypically variant, but they display normal phenotypic variance.

The Examiner acknowledges that "...there may be some minor morphological variation in seeds of a given cultivar", but argues that "...the amount of variation that is now asserted by Appellant would not be understood by one skilled in the art upon

Attorney Docket No. 414634

reading the specification." (Examiner's Answer, p. 34) It is unclear why the Examiner believes that the amount of variation in Enola is beyond "minor morphological variation [observed] in seeds of a given cultivar". Nothing in the record suggests that Enola displays anything other than normal phenotypic variance which would be recognized by one skilled in the art as a well-known and expected phenomenon.

The presence of genetic diversity does not necessarily lead to traits that are "not true to type". Seeds may be at least partially genetically diverse, yet still display one or more uniform and stable phenotypes. For example, the portion of the genome responsible for the uniform and stable traits may be consistent throughout the cultivar, while other portions of the genome may vary. Appellant has previously addressed this point by stating that according to the Merriam-Webster Online Dictionary, a genotype is all or part of the genetic constitution of an individual or group. Appellant has stated that the Enola cultivar does not consist of individuals with identical (uniform) genetic constitutions (i.e., the Enola cultivar is not comprised of cloned plants). The Merriam-Webster Online Dictionary also defines a phenotype as the visible properties of an organism that are produced by the interaction of the genotype and the environment. Since the Enola phenotype is stable and uniform in multiple environments, we must assume that at least part of the genotype (responsible for the visible properties) is uniform. (Appcal Brief, p. 14)

With regard to the Laura Conley Declaration, the Examiner concludes that because individuals 1, 51, 52 and 53 differ in multiple AFLP markers "...Appellant asserts that the cultivar of the invention came from a variety of yellow beans. Yet these assertions made by Appellant appear to contradict statements set forth in the patent disclosure." (Examiner's Answer, p. 32, emphasis added) To clarify the record, Appellant has not asserted that the cultivar of the invention came from a variety of yellow beans, and we respectfully request that the Examiner provide a citation corresponding to the alleged assertions. Appellant maintains that Enola was derived by selection from self-pollinating plants over the course of several generations. Differences in AFLP markers between individuals 1, 51, 52 and 53 confirm that the tested individuals are not clones. The differences do not confirm, or

Attorney Docket No. 414634

even imply, that the cultivar of the invention came from a variety of yellow beans. For example, a single heterozygous plant that reproduces through self-pollination could create genetically diverse progeny that display different AFLP markers.

The Examiner states that "Appellant has provided arguments and evidence that the deposited seeds have many traits that are not stable and uniform." (Examiner's Answer, p. 34) This statement is incorrect. Appellant has merely described phenotypic variance within the Enola cultivar, and the Examiner acknowledges that "...there may be some minor morphological variation in seeds of a given cultivar" (Examiner's Answer, p. 34). Such minor morphological variation does not detract from the stable and uniform traits of the cultivar, or otherwise create unusual characteristics that are "not true to type". Thus, the amount of variation within the Enola cultivar is not so significant that one skilled in the art would not be able to distinguish infringing materials from non-infringing materials.

Appellant respectfully traverses the §112, first paragraph, written description rejection.

Patentability under 35 U.S.C. §112, first paragraph, enablement, claims 1-15, 51, 52 and 56-64.

Claims 1-15, 51, 52 and 56-64 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner maintains that Appellant and the Declaration of Gil Waibel both have described the deposited seeds as varied in phenotype. Specifically, the Examiner notes that the primary color of seed coat addressed at item # 42 of the Waibel Declaration asserts that "most" of the seed was in a color range of Munsell $\underline{5}$ Y 8.5/4 to 7.5 y 8/8 (Examiner's Answer, p. 37). As discussed in the Appeal Brief (p. 12), point # 42 of the Waibel Declaration references charts 15 and 31, which clearly show that the peak occurrence of Enola seed coat color occurs between 7.5 Y 8.5/4 to 7.5 Y 8.5/6, as claimed and recited in the patent specification. In charts 15 and 31, 85% and 80% of the Enola seeds examined showed color in the 7.5 Y 8.5/4 to 7.5 Y 8.5/6 range. The Examiner states that "Appellant has not responded to the Examiner's concerns regarding this discrepancy." (Examiner's Answer, p. 37) Appellant believes that the

Attorney Docket No. 414634

most likely reason for the discrepancy between the text of point #42 and charts 15 and 31 is a typographical error in the Declaration of Gil Waibel at point # 42, with the data of charts 15 and 31 illustrating the correct peak occurrence; however, Appellant is not in a position to speak on behalf of Mr. Waibel.

In response to Examiner's argument that "Appellant has not provided guidance with regard to how one skilled in the art would select from the heterogeneous seeds that are deposited to identify individuals that would have the stable and uniform traits that Appellant is apparently using to define the Enola yellow beans..." (Examiner's Answer, p. 38), Appellant reiterates that each and every seed on deposit belongs to the Enola cultivar. Therefore, one of skill in the art could easily reproduce the claimed invention without undue experimentation, for example, by accessing the ATCC deposit, as any seed on deposit would produce a plant of the claimed cultivar.

Appellant respectfully traverses the §112, first paragraph, enablement rejection.

Patentability under 35 U.S.C. §112, second paragraph, claims 1-7 and 59-64.

Claims 1-7 and 59-64 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner objects to Appellant's statement that the seeds deposited with the ATCC are not seeds of a single genetic entity. The Examiner states, "*Based on the patent disclosure*, it is presumed that Enola seed that is deposited as ATCC Accession Number 209549 is a bean cultivar of uniform genetic and phenotypic composition..." (Examiner's Answer, p. 15, emphasis added) It is unclear exactly where in the patent disclosure, the Examiner finds support for this statement. The Enola cultivar is described throughout the patent disclosure as displaying specific uniform and stable phenotypic traits, e.g., seed coat color and hilar ring color. As discussed above, it is possible for at least part of the genome, which is not responsible for the uniform and stable phenotypic traits, to exhibit diversity.

The Examiner further states that "...the specification does not define the full range of seed phenotypes and genotypes that are comprised in the deposit, such that

Attorney Docket No. 414634

one skilled in the art would be able to determine what materials would infringe the claim.” (Examiner’s Answer, p. 40) We reiterate that plant breeders select on the basis of phenotypes, not genetic sequences, and to require “the full range of seed...genotypes that are comprised in the deposit” would require a plant breeder to act in the capacity of a geneticist, molecular biologist or biochemist. Such a standard of identifying genotypes would be inequitable and would place an undue burden on a plant breeder. Based on the specified stable and uniform phenotypes, however, one skilled in the art would easily be able to determine whether or not a material infringes the claims. For example, by comparing a potentially infringing material to the claim limitation(s), e.g., a specified color in the *Munsell Book of Color*.

The Examiner further states, “The deposit of seed provides a reproducible means of making a genetically and phenotypically unique plant that cannot be recreated based on a patent disclosure. Hence, it has become routine in the plant breeding art to deposit seed of a *genetically homogeneous line* of plants, in order to obtain a plant utility patent. It is by deposit that the enablement is satisfied because it allows one of skill in the art to reproducibly make *the same genetic entity*.” (Examiner’s Answer, p. 16, emphasis altered) Nowhere in the patent rules does it state that a deposit must consist of “a genetically homogeneous line of plants” for making “the same *genetic entity*”. Nor is it necessary that the subject plant “cannot be recreated based on a patent disclosure.” In fact, “[t]here is no necessary implication or presumption that can or should be made about the need for a deposit simply because reference to a deposit is made in an application disclosure...” (MPEP 2404) We object to the Examiner’s arbitrary and capricious reasoning for the deposit of biological material, and respectfully traverse the §112, second paragraph rejection.

Patentability under 35 U.S.C. §112, second paragraph, claims 59-64.

Claims 59-64 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner deems the phrases “wherein the yellow color plotted as a distribution in the population of the seed of sufficient number for purposes of ATCC deposit has a peak occurrence ranging...” and “as

Attorney Docket No. 414634

evidenced by a substantially uniform yellow color plotted as a distribution in a population of the seed of sufficient number for purposes of ATCC deposit has a peak occurrence ranging..." to be indefinite. In particular, the Examiner states that "...the claims are drawn to 'seed', which may be interpreted as singular or plural..." such that the claims could cover "a vast range of seed populations of varied number and color distribution." (Examiner's Answer p. 41)

However, to interpret claims 59 or 62 as pertaining to a single seed would be nonsensical. For example, claim 59, when edited to pertain to a single seed, would refer to "[A single seed] from a field bean variety of *Phaseolus vulgaris* having a seed coat that is yellow in color, wherein the yellow color [of the seed coat of the single seed] plotted as a distribution in a population of the [single] seed of sufficient number for purposes of ATCC deposit has a peak occurrence ranging from about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light." It is not possible for the yellow seed coat color of a single seed to be plotted as a distribution, or for one plotted point - corresponding to the seed coat color of the single seed - to have a peak occurrence.

The Examiner further states that "While a plant breeder may understand plotting a phenotypic distribution of a population of seed, every seed population would have its own phenotypic distribution and peak occurrence range." Such phenotypic distributions and peak occurrence ranges for a population of a given type of seed would be expected to be highly reproducible. It is by these consistent and reoccurring phenotypes that we differentiate and recognize plants and other living matter. For example, every Enola seed population would be expected to have a peak occurrence of seed coat color of from about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light.

Appellant respectfully traverses the §112, second paragraph rejection.

Patentability under 35 U.S.C. §102/103 claims 1-15, 51, 52 and 56-64.

Claims 1-15, 51, 52 and 56-64 stand rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over CIAT G13 094, G02 400, G22 215, G22 227, G22 230, G11 891, or Kaplan (Guitarrero

Attorney Docket No. 414634

Cave, p. 146, 1980), or Hernandez-Xolocotzi et al. (Seminar Series 2E, CIAT, p. 253-258, 1973), or Voysest (Varieties of Beans in Latin America, CIAT, p. 47-50, 1983) or Azufrado Peruano 87 (Secretaria de Agricultura Y Recursos Hidraulicos; Solicitud de Inscripcion en el Registro Nacional de Variedades de Plantas, Registration No. FRI-150288-042, September 25, 1987 at No. 52 and 53, in the IDS filed November 15, 2002).

We thank the Examiner for withdrawal of the rejection over Gepts (The Genetic Resources of Phaseolus Beans, p. 602, 1988). (Examiner's Answer, p. 42)

The Examiner maintains that the use of the preposition "about" with regard to the range of yellow shades in the Munsell color chart broadens the claims to encompass shades of yellow that are outside the specified color squares. Further, the Examiner argues that, "...the Munsell color chart is based on a three-dimensional color spectrum that has an axis for each of hue, chroma and value. So, while a color square may not be present on the same page and adjacent to 7.5 Y 8.5/4 and 7.5 Y 8.5/6, a color square may still be adjacent in the three-dimensional spectrum. In the present case, adjacent squares also will be on the 5 Y page or the 10 Y page. All of the seed coat colors presented in the Declaration of Polly Proctor are on the 5 Y, 7.5 Y and 10 Y pages." (Examiner's Answer, p. 44)

The Munsell color system is based upon human visual perception of three parameters: hue, chroma and value. Adjacent squares for each of these parameters are "based upon equal perceived differences in color." (Attachment 2 to the Polly Proctor Declaration) Thus, deviation in any of these parameters (hue, chroma or value) relative to a specified Munsell score, or specified square, will be detected by the human eye as a perceptible difference, or mismatch. Such perceptible differences would not lead one skilled in the art to conclude that a color having an incorrect hue, chroma and/or value is "about" the same as a specified score/square. Appellant has previously addressed this issue by stating that "Applicant did not and does not intend...to try to stretch or distort 'about' in such a way as to gain claim coverage of a bean matching some Munsell color square other than the specified 8.5/4 and 8.5/6 squares on the 7.5 Y page of the *Munsell Book of Color* (L. Proctor Declaration at 6)." (Appeal Brief, p. 19)

Attorney Docket No. 414634

Next, the Examiner again refers to what Appellant believes is a typographical error in the color range recited at point #42 of the Gil Waibel Declaration by stating, "In view of the broad range of color identified by Waibel, the prior art cultivars anticipate the claims." (Examiner's Answer, p. 44) However, the Examiner errs in comparing the prior art to the Waibel Declaration, rather than to the pending claims. We respectfully traverse this "apples and oranges" comparison, which is not only incorrect in and of itself, but which is incorrectly based on a typographical error.

The Examiner further argues that "seeds of the deposit are identical to the prior art seeds, as evidenced by Pallotini et al." This is a misrepresentation of the Pallotini findings. As stated in the Declaration of Laura Conley, "The identification of a set of AFLP fragments that is identical for two individuals, does not 'prove' homogeneity of those individuals." The presence of similar AFLP markers merely shows some similarities within a portion of the genome. The technique does not investigate the entire genome, there is no indication of which traits are controlled by the AFLP fragments, nor is any genetic sequencing performed. Pallotini does not demonstrate that Azufrado Peruano 87 anticipates the claims.

The Examiner states that "...due to the effects of different soils, environmental conditions, cultivation conditions and geographic conditions on the phenotypic characteristics of all plants, including beans, the claimed beans...are held to be morphological variants of the prior art lines..." To support this position, the Examiner cites the Declaration of Gil Waibel which states, "Plants show *slight* differences in how they develop each year depending on the environment they grow in." (sentence bridging pages 1-2, emphasis added) Appellant contends that such "slight differences" fall within the scope of phenotypic variance. Should the Examiner maintain this rejection, we respectfully request supporting evidence in the manner dictated by MPEP 2144.03(C).

At page 49 of the Examiner's answer, it is stated that "...the specification does not indicate that any selection steps were made based on seed coat color." We note, however, that the specification states, "The cultivar has been self-pollinated a sufficient number of generations, with careful attention to uniformity of plant type to

Attorney Docket No. 414634

ensure phenotypic stability...As used herein, the term "**plant**" includes plant cells, plant protoplasts, plant cells of tissue culture from which field bean plants can be regenerated, plant calli, plant clumps, and plant cells that are intact in plants or parts of plants, such as pollen, flowers, seeds, pods, leaves, stems, and the like." (col. 4, lines 32-51, emphasis added)

Appellant respectfully traverses the §102/§103 rejection.

Requirement for Information under 37 C.F.R. §1.105.

The Examiner states that "Appellant has not provided a statement regarding the correct date or dates of the selection method." (Examiner's Answer, p. 52)

Again, we direct the Examiner's attention to the following statement:

"Applicant planted the collection of yellow beans in 1991, and pursued a program of selective breeding for three generations. The invention was complete in 1993. For purposes of improving stability, applicant continued to selectively breed the invention through perhaps 1997. The patent states that the Mexican beans were acquired in 1994 and the breeding program started then. This is incorrect. It is an error. The same error was made in applicant's application for a Plant Variety Protection Act Certificate..." (Office Action Response filed March 25, 2003, p. 15)

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020/032

MAY 14 2007

Attorney Docket No. 414634

(4) Claims appendix.

Appellants enclose a copy of the claims involved in this appeal as an appendix hereto.


Conclusion

Throughout the record, the Examiner argues that genetic heterogeneity of the deposited seeds implies that variant traits must be present. Yet there is no evidence that members of the Enola cultivar differ beyond what is expected due to normal phenotypic variance, i.e., minor morphological variation. Where "[t]he ultimate determination of patentability must be based on consideration of the entire record, by a preponderance of evidence..." *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992), we submit that Appellant has shown by a preponderance of the evidence that the claims satisfy the written description and enablement criteria, particularly point out and distinctly claim the subject matter, and patentably distinguish over the art of record.

Authorization to charge fees associated with a request for oral hearing and submission of a brief in support of an appeal is submitted herewith. If any additional fee is deemed necessary, the Commissioner is hereby authorized to charge such fee to Deposit Account No. 12-0600.

Respectfully submitted,

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MAY 14 2007

PATENT
Attorney Docket No.: 414634

CLAIM APPENDIX TO REPLY BRIEF

1. (Original) A *Phaseolus vulgaris* field bean seed designated Enola as deposited with the American Type Culture Collection under accession number 209549.
2. (Original) A field bean plant produced by growing the seed of claim 1.
3. (Original) Pollen of the plant of claim 2.
4. (Original) A field bean plant having all the physiological and morphological characteristics of the field bean plant of claim 2.
5. (Original) A method of producing a field bean plant comprising crossing a first parent field bean plant with a second parent field bean plant, wherein the first field bean plant is the field bean plant of claim 2.
6. (Original) A method of producing a field bean plant comprising crossing a first parent field bean plant with a second parent field bean plant, wherein the second field bean plant is the field bean plant of claim 2.
7. (Previously presented) A method of producing a field bean plant comprising crossing a first parent field bean plant with a second parent field bean plant, wherein the first field bean plant and the second field bean plant is the field bean plant of claim 2.
8. (Original) A field bean variety of *Phaseolus vulgaris* that produces seed having a seed coat that is yellow in color, wherein the yellow color is from about

Attorney Docket No. 414634

7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light.

9. (Previously presented) The field bean variety of claim 8 wherein the seed further comprises a hilar ring.

10. (Previously presented) The field bean variety of claim 9 wherein the hilar ring has a color of from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

11. (Original) Propagation material of the *Phaseolus vulgaris* of claim 8.

12. (Original) Pollen of the *Phaseolus vulgaris* of claim 8.

13. (Original) Seed from a field bean variety of *Phaseolus vulgaris* that is completely yellow in color, wherein the yellow color is from about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color*.

14. (Original) Seed of claim 13 further comprising a hilar ring.

15. (Original) Seed of claim 14 wherein the color of the hilar ring is from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

16. (Withdrawn) A *Phaseolus vulgaris* field bean plant, said plant comprising a wood-like stalk and a plurality of wrinkled, dull, ovate-shaped leaves.

17. (Withdrawn) The plant of claim 16, wherein said plant comprises a plurality of white flowers.

Attorney Docket No. 414634

18. (Withdrawn) The plant of claim 16, wherein at least one of said flowers comprises a plurality of white wings.
19. (Withdrawn) The plant of claim 16, wherein at least one of said flowers comprises a white keel.
20. (Withdrawn) The plant of claim 16, wherein said plant comprises a plurality of pods whose positions on said plant are scattered.
21. (Withdrawn) The plant of claim 16, wherein said plant comprises a plurality of flowers and pods, said stalk, leaves, flowers and pods being free from anthocyanin.
22. (Withdrawn) The plant of claim 16 wherein the apex of said leaves are acuminate and the base of said leaves is obtuse.
23. (Withdrawn) The plant of claim 22, wherein the average height of said plant when mature is about 34.9 cm.
24. (Withdrawn) The plant of claim 22, wherein said plant has lodging resistance through maturity and withstands wind and other climatic conditions.
25. (Withdrawn) The plant of claim 22, wherein said plant establishes a long, deep-growing, wood-like taproot, a plurality of wood-like lateral roots, and a plurality of wood-like feeder roots.

Attorney Docket No. 414634

26. (Withdrawn) The plant of claim 25, wherein said taproot is larger than at least one of said lateral roots, and at least one of said lateral roots is larger than said feeder roots.

27. (Withdrawn) The plant of claim 25, wherein said taproot averages 1.0 cm +/- in caliper size.

28. (Withdrawn) A pod of a *Phaseolus vulgaris* field bean plant having, at onset, a solid green color pattern, wherein said color is about 5 GY 6/6 in the *Munsell Book of Color* when viewed in natural light.

29. (Withdrawn) The pod of claim 28, wherein said pod has a pear-shaped cross section.

30. (Withdrawn) The pod of claim 29, wherein the curvature of said pod is straight and the orientation of the beak of said pod is straight.

31. (Withdrawn) The pod of claim 30, wherein said pod has slight constrictions.

32. (Withdrawn) A pod of a *Phaseolus vulgaris* field bean plant having, at maturity, a solid tan color pattern, wherein said color is about 5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light.

33. (Withdrawn) The pod of claim 32, wherein said pod has a pear-shaped cross section.

Attorney Docket No. 414634

34. (Withdrawn) The pod of claim 32, wherein said pod is slightly curved and the orientation of the beak of said pod is variable.

35. (Withdrawn) The pod of claim 32, wherein said pod has slight constrictions.

36. (Withdrawn) The pod of claim 32, wherein the average beak length of said pod is 1.2cm.

37. (Withdrawn) The pod of claim 32, wherein said pod comprises seeds and the number of said seeds per pod is approximately 3.1.

38. (Withdrawn) A *Phaseolus vulgaris* field bean plant, said plant comprising a wood-like stalk, at least one pod, and a plurality of wrinkled, dull, ovate-shaped leaves.

39. (Withdrawn) The plant of claim 38, wherein said pod has, at onset, a solid green color pattern, wherein said color is about 5 GY 6/6 in the *Munsell Book of Color* when viewed in the natural light.

40. (Withdrawn) The plant of claim 39, wherein said pod has a pear-shaped cross section.

41. (Withdrawn) The plant of claim 40, wherein said pod is straight and the orientation of the beak of said pod is straight.

42. (Withdrawn) The plant of claim 41, wherein said pod has slight constrictions.

Attorney Docker No. 414634

43. (Withdrawn) The plant of claim 38, wherein said pod has, at maturity, a solid tan color pattern, wherein said color is about 5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light.

44. (Withdrawn) The plant of claim 43, wherein said pod has a pear-shaped cross section.

45. (Withdrawn) The plant of claim 43, wherein said pod is slightly curved and the orientation of the beak of said pod is variable.

46. (Withdrawn) The plant of claim 43, wherein said pod has slight constrictions.

47. (Withdrawn) The plant of claim 43, wherein the average beak length of said pod is 1.2cm.

48. (Withdrawn) The plant of claim 43, wherein said pod comprises seeds and the number of said seeds per pod is approximately 3.1.

49. (Withdrawn) A method of harvesting a *Phaseolus vulgaris* field bean plant, said method comprising the following steps:

- a. knifing the plant;
- b. placing the plant into a windrow;
- c. allowing the plant to dry.

50. (Withdrawn) The method of claim 49 wherein said drying step is continued for approximately 5 to 8 days.

Attorney Docket No. 414634

51. (Previously presented) Seed from a field bean variety of *Phaseolus vulgaris* comprising a seed coat and a hilar ring wherein the seed coat color is about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light;

the seed being stably reproducible to provide additional seed having the hilar ring and the seed coat color,

the seed being produced by a process that includes isolating a population of seed by selection of the hilar ring and the seed coat color from seed products of a segregating population of plants.

52. (Previously presented) The seed of claim 51 wherein the hilar ring color is from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

53. (Withdrawn) A seed from a field bean variety of *Phaseolus vulgaris* comprising a seed coat and a hilar ring wherein the hilar ring color is from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

54-55. (Cancelled)

56. (Previously presented) The seed of claim 51, wherein said seed germinates in an environment free of light.

57. (Previously presented) The seed of claim 51, wherein said seed is from the middle of a pod and is cuboid in shape.

Attorney Docket No. 414634

58. (Previously presented) The seed of claim 51, wherein the dry seed weight is about 43 grams per 100 seeds (adjusted to 12 percent moisture).

59. (Previously presented) Seed from a field bean variety of *Phaseolus vulgaris* having a seed coat that is yellow in color, wherein the yellow color plotted as a distribution in a population of the seed of sufficient number for purposes of ATCC deposit has a peak occurrence ranging from about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light.

60. (Previously presented) The seed of claim 59 comprising a hilar ring.

61. (Previously presented) The seed of claim 60 wherein the color of the hilar ring is from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

62. (Previously presented) Seed from a field bean variety of *Phaseolus vulgaris* having germplasm for expressing a seed coat that is yellow in color as evidenced by a substantially uniform yellow color of the seed coat, wherein the substantially uniform yellow color plotted as a distribution in a population of the seed of sufficient number for purposes of ATCC deposit has a peak occurrence ranging from about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light.

63. (Previously presented) The seed of claim 62 comprising a hilar ring.

Attorney Docket No. 414634

64. (Previously presented) The seed of claim 62 wherein the color of the hilar ring is from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

65. (Withdrawn) A population of seeds from a field bean variety of *Phaseolus vulgaris* wherein at least 70% of the seeds in the population have a hilar ring with a color from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

66. (Withdrawn) A population of seeds from a field bean variety of *Phaseolus vulgaris* wherein at least 85% of the seeds in the population have a seed coat with a color from about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book of Color* when viewed in natural light.

67. (Withdrawn) The seed population of claim 66, wherein at least 70% of the seeds in the population have a hilar ring with a color from about 2.5 Y 9/4 to about 2.5 Y 9/6 in the *Munsell Book of Color* when viewed in natural light.

68. (Withdrawn) The seed population of claim 66, wherein the seed population originates from a population of pods, wherein at least 40% of the pods in the pod population have a beak orientation that is selected from the group consisting of straight, curved upward and combinations thereof.

69. (Withdrawn) The seed population of claim 66, wherein the seed population originates from a population of plants having leaflets, wherein at least 46% of the leaflets of the plant population have an ovate shape.

70. (Withdrawn) The seed population of claim 66, wherein the seed population originates from a population of plants having leaflets, wherein at least 61% of the leaflets of the plant population have a color of about 5 GY 5/6 in the *Munsell Book of Color* when viewed in natural light.

71. (Withdrawn) A method of producing a progeny field bean plant comprising crossing a first parent field bean plant with a second parent field bean plant, wherein the second parent field bean plant is the field bean plant of claim 2, the

Attorney Docket No. 414634

progeny field bean plant produces a seed having a seed coat color of about 7.5 Y 8.5/4 to about 7.5 Y 8.5/6 in the *Munsell Book Of Color* when viewed in natural light.

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